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An Analysis of Vocabulary Learning Strategies Used by Sri Lankan IT Undergraduates: Frequency, Technology Usage and Performance at a Formative Assessment

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Abstract

Learning vocabulary is an integral part in language acquisition and acquisition of academic vocabulary is a determinant for the success in an academic context. Therefore, many studies have been conducted to formulate academic vocabulary lists and identifying vocabulary learning strategies. This study seeks to explore the vocabulary learning strategies employed by IT undergraduates when studying academic vocabulary and to examine their performance on academic vocabulary related questions at the mid-term examination which is one of their formative assessments. The sample of the study includes 276 first year IT undergraduates who follow the module English for Academic Purposes in a Sri Lankan non-state university. A questionnaire is used as the research tool to obtain data from the sample and the result of the formative exam is used to examine the performance related to academic vocabulary. According to the data analysis, most of the students often use either monolingual or bilingual dictionary as a strategy for the discovery of a new word meaning. This is more emphasized as they have mentioned that they prefer using dictionary apps as a vocabulary strategy using online. A significant number of students study the spelling, meaning and form of a word and ask for help from their friends as strategies for consolidating a word once it has been encountered. When comparing the marks obtained for the vocabulary related questions at the exam, it is noted that the students have obtained less marks to the question in which they had to replace the underlined word/phrases with a more academic alternative. Thus, students need to adopt more effective strategies to acquire mastery of academic vocabulary. Moreover, they should reflect on the current strategies used by them.

Keywords: Academic vocabulary, Formative assessment, IT undergraduates, Vocabulary learning strategies.

Introduction

Vocabulary learning is crucial for language acquisition regardless of it being the first language or the second language because “without grammar very little can be conveyed, without vocabulary nothing can be conveyed” ((Schmitt, 2010). Learning vocabulary is

a compelling factor in second or foreign language context and it raises several concerns such as knowing the number of words used by native speakers, knowing the number of words that are needed to learn, knowing the types of words to be learnt and finding the most effective vocabulary learning strategies. Coxhead and Nation (2001) categorize English vocabulary into four categories as high frequency words, academic vocabulary, technical vocabulary and low frequency words. Meanwhile, they claim that academic vocabulary “consists of 570 words that are reasonably frequent in a wide range of academic texts, but are not so common, although they do occur, in other kinds of texts” (p. 252). Accordingly, between 8.5% to 10% of running words (p. 252) in academic texts belong to the category of academic vocabulary thus making it an important learning component. Moreover, the complexity of knowing a word which involves knowing the form, meaning and use, increases the learning burden or the effort that is required from the learners to study a particular word (Nation, 2013) and learning academic vocabulary has no exception.

The theoretical framework of this study includes Schmitt’s taxonomy of vocabulary learning strategies, Sociocultural theory (SCT) and Noticing hypothesis. Vocabulary Learning Strategies (VLS) play an important role in the acquisition of vocabulary. Schmitt (2000) has created a list of vocabulary learning strategies with two categories. The first category consists of “strategies for the discovery of a new word’s meaning” (p. 134) which includes strategies such as analyzing the form of the word, using a dictionary and asking help from the teacher or friends while

the second category consists of “strategies for consolidating a word once it has been encountered” (p. 134) consists of strategies such as using previous experience, using semantic maps, lists and engaging in verbal and written repetition. Further to these two broad categories, Schmitt(2000) has grouped them into five sub sections (pp. 134-136) as follows:

1. Determination strategies (DET): This includes finding the meanings of the words by oneself using the existing knowledge on the structure of the word, guessing the meaning from the context, and using reference materials like dictionaries.
2. Social strategies (SOC): This includes strategies that involve language learning through interaction between people such as peers and teachers of the learners.
3. Memory strategies (MEM): This involves strategies that connect the words learning with their previous experiences.
4. Cognitive strategies (COG): This involves strategies that are used to manipulate vocabulary learning such as repetition and keeping vocabulary notebooks.
5. Metacognitive strategies (MET): This includes strategies that employ conscious awareness regarding the process of vocabulary learning.

Sociocultural theory (SCT) provides a theoretical base for this study. According

to Lantolf et al. (2015) SCT comprises of the elements of mediation, regulation, internalization and the Zone of Proximal Development (ZPD) in the learning process. They explain SCT as follows:

Mediation is the principal construct that unites all varieties of SCT and is rooted in the observation that humans do not act directly on the world—rather their cognitive and material activities are mediated by symbolic artifacts (such as languages, literacy, numeracy, concepts, and forms of logic and rationality) as well as by material artifacts and technologies. The claim is that higher order mental functions, including voluntary memory, logical thought, learning, and attention, are organized and amplified through participation in culturally organized activity... the concept of internalization, the processes through which interpersonal and person–environment interaction form and transform one’s internal mental functions, and the role of imitation in learning and development ... ZPD, the difference between the level of development already obtained and the cognitive functions comprising the proximal next stage of development that may be visible through participation in collaborative activity (Lantolf et al., 2015, p 320) Schmidt (2010) claims that “The Noticing Hypothesis –an hypothesis that input does not become intake for language learning unless it is noticed, that is, consciously registered”. Further, he asserts that the students should consider form of a word which includes pronunciation and spelling and simultaneously should consider the available clues that leads to comprehend the meaning of that particular word (Schmidt, 2010, p. 725).

The review of literature includes both global and Sri Lankan studies conducted on vocabulary learning strategies with special reference to studies that employed Schmitt(2000)’s taxonomy of vocabulary learning strategies. A study (Besthia, 2018) on Indonesian post graduate and undergraduate students of the departments of English and Education used Schmitt’s classification of vocabulary learning strategies. Accordingly, guessing the meaning from the textual context, using a monolingual dictionary, repeating the words verbally, analyzing the parts of speech and keeping a vocabulary notebook were the most frequently used vocabulary strategies. Further, it has been found that skipping certain new words and asking the L1 meaning from the teacher are the least frequently used strategies. Another study (Komol & Sripetpun, 2011) which employed Schmitt (2000)’s classification of vocabulary strategies with Thai undergraduates who were pursuing liberal arts degree stated that using bilingual dictionary, asking the meaning from classmates and use of English media as the most frequently used strategies. Further, using vocabulary lists, discovering meaning through group activities, interacting with native speakers, keeping a vocabulary notebook, and continuing to study words over the time were listed as least frequently used strategies among Thai liberal arts students. Rabadi’s study (2016) on Jordanian university students majoring in English language and literature also used Schmitt’s classification of vocabulary learning strategies and found that asking help from teachers with L1 meaning and synonyms, using dictionaries, grouping new words and oral repetition as some of the highest used strategies. Meanwhile, studying words with a group of friends and using

semantic maps were identified as some of the least used strategies by the participants. In addition, the Jordanian students claimed that they use English media, discuss with, or ask the meaning from friends, study the parts of speech and affixes as moderately used strategies. Considering the above-mentioned studies, although there are several studies which are based on Schmitt (2000) 's classification of vocabulary learning strategies, there is a lack of studies which take IT undergraduates as the sample of the study.

It is paramount to study the available literature in the Sri Lankan context since the present study is based on the Sri Lankan IT undergraduates. However, there are limited number of Sri Lankan studies that focus on vocabulary learning strategies. A study conducted by Weeraratna, Wijetunge, and Jayasinghe (2017) discovered that there is no significant difference on undergraduates being exposed to their L1 in the process of acquisition of L2 vocabulary. Manchanayaka's study (2019) identified "use written repetition, verbal repetition, and bilingual dictionary strategies" (p. 46) as the most preferred vocabulary learning strategies of Engineering Sciences students. Dharmawardene's (2020) study analyzed the effectiveness of the virtual blended learning against the face-to-face mode in learning academic vocabulary amongst undergraduates of the Faculty of Technology in a Sri Lankan university. Accordingly, the use of virtual blended learning which included peer collaboration proved to be effective compared to the face-to-face vocabulary learning method. Dhanapala (2007) compared the English language learning strategies of Japanese and Sri Lankan students and discovered that Sri Lankan learners

frequently employed the strategy of using newly learnt English vocabulary in a sentence in order to memorize them compared to the Japanese students while the Japanese students employed the strategy of using a picture or an image of the new word to internalize a new word. In addition, the Japanese learners employ the strategy of using rhymes and flash cards as a mean to learn vocabulary. Fernando (2021) explored the use of semantic mapping as a mean to acquire L2 vocabulary and the results proved that the students prefer the use of semantic mapping due to its interesting and collaborative nature. Considering the available Sri Lankan and global literature, it is evident that there is little research on exploring the vocabulary learning strategies used by IT undergraduates in Sri Lanka thus creating a research gap which will be filled by this study.

This study seeks to explore the vocabulary learning strategies employed by IT undergraduates when studying academic vocabulary and to examine their performance on the academic vocabulary related questions in a formative exam. Based on this, several objectives have been formulated namely; to examine the frequency of using vocabulary strategies listed by the researcher, to examine the performance of the students against the vocabulary related questions at a formative exam, and to explore the usage of technology related strategies in vocabulary acquisition.

Materials and Methods

Population and sample

This study is based on the quantitative research design using a survey as the research tool. The population of this study is the first year

second semester undergraduates who pursue a degree in Information Technology (IT) in a Sri Lankan non-state university and the population size is 1590. When questionnaire was uploaded to the Learning Management System (LMS), only 276 students responded voluntary. Thus, the sample size for this study was taken as 276 first year second semester undergraduates of the Faculty of Computing.

Research tool

A questionnaire was used as the research tool to collect data regarding the frequency of using vocabulary learning strategies under three different sections namely (i) Strategies for the discovery of a new word's meaning, (ii) Strategies for consolidating a word once it has been encountered and (iii) Strategies that use technology. The first two categories were based on Schmitt(2000)'s list of vocabulary learning strategies articulated as statements with a five-point Likert scale ranging from 0 to 4 (0=never, 1= Rarely, 2= Sometimes, 3=Often, 4=Always). Section (i) and (ii) included 11 (See Table 1) and 18 (See Table 2) statements respectively. Section (iii) of the questionnaire consisted of 4 statements (See Table 3) which used the same Likert scale as mentioned above that were developed by the researcher to examine the frequency of vocabulary learning strategies that use technology in other words use of computer and IT. At the end of the questionnaire an open-ended question was provided to express the problems faced by the students in learning academic vocabulary. The percentage of frequencies were considered under each category for comparison. In addition to the data obtained from the questionnaire, marks obtained by the students at the mid-term

examination which was one of the formative assessments were taken to examine the performance of the students with regard to academic vocabulary. The basic descriptive statistics were obtained to compare results.

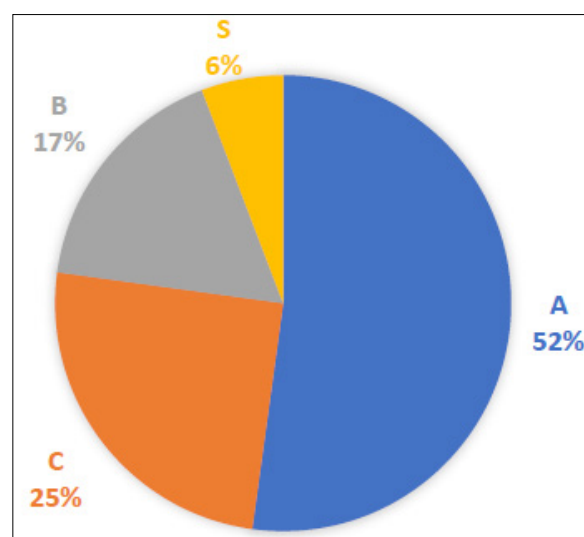
Results and Discussion

Basic information of the students in the sample

The sample of the study includes 276 first year Faculty of Computing undergraduates in a Sri Lankan non-state university. Demographic data is collected for gender, mother tongue (L1), G.C.E. (Ordinary Level) (G.C.E.(O/L) English result and G.C.E. (Advanced Level) (G.C.E.(A/L) General English result. Of the 276 students, the percentages of males and females are 63% and 37% respectively. Moreover, 93% of the students in the sample use Sinhalese as their mother tongue while the balance 7% uses Tamil as their mother tongue. The percentage distribution of grades for G.C.E. (O/L) English is shown in Figure 1.

Figure 1.

G.C.E.(O/L) English language result of the participants.



The results obtained for G.C.E.(O/L) English language ranges between ‘A’ to ‘S’ grades which are considered as pass grades. In contrast, G.C.E. (A/L) General English ranges between ‘A’ to ‘F’, ‘F’ being considered as a failure grade (See Figure 4). These differences may have an impact on the vocabulary learning strategies used by the selected sample.

Analysis of the frequency of VLS used to discover the meaning of new word

The analysis of the frequency of using the vocabulary learning strategies used to discover the meaning of a new word is presented as percentages in Table 1.

Figure 2.
G.C.E.(O/L) English language result of the participants.

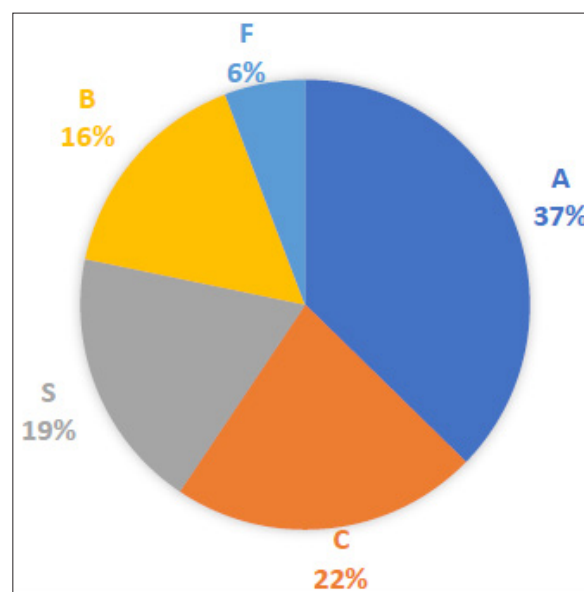


Table 1.
Strategies used to discover the meaning of a new word.

Vocabulary learning strategy	Percentage of response of using the strategy (%)				
	Never	Rarely	Sometimes	Often	Always
I analyse parts of speech (e.g., noun, verb, adjective). (DET) ¹	3.26	8.70	43.12	35.14	9.78
I analyse affixes and roots to guess the meanings of words (e.g., replay – re means do it again). (DET)	4.35	9.78	34.42	38.77	12.68
I use the pictures or gestures to understand the meaning of Words. (DET)	10.50	26.09	36.23	21.38	5.80
I guess the meanings of words from textual context. (DET)	1.45	9.78	36.59	37.32	14.86
I search the meaning of a word using an English -English dictionary. (DET)	2.90	13.77	27.54	32.60	23.19
I search the meaning of a word using an English -Sinhala or Tamil dictionary (DET)	14.13	19.20	26.09	28.62	11.96
I prepare a list of vocabulary and study it. (COG) ²	27.54	28.26	27.17	13.04	3.99

1 DET refers to determination strategies

2 COG refers to cognitive strategies

Table 1. (Continued)

When I do not understand the meaning of a word, I Ask the teacher to translate the meaning of a word. (SOC) ³	26.45	40.94	25.72	5.80	1.09
I ask the teacher for synonyms or similar meanings for a new Word. (SOC)	28.99	45.65	18.84	5.07	1.45
I ask the meaning of an unknown word from my friends in the class. (SOC)	5.43	16.67	37.32	32.25	8.33
I study and practice vocabulary with a group of friends. (SOC)	31.16	30.43	25.36	10.87	2.18

3 SOC refers to social strategies

Vocabulary learning strategies used to discover the meaning of a new word includes five Determination strategies (DET), four Social strategies (SOC) and a Cognitive strategy (COG). It is evident that the majority of the sample employ the strategies of analyzing part of speech and affixes ‘sometimes’ which is 43.12% while a considerable proportion which is 35.14% using these strategies ‘often’ suggesting that the students pay attention to the form of a word when they discover new words. In addition, 37.32% of the sample often guess the meaning of a new word from the textual context which can be considered as a skill of inferring. Use of dictionary is vital in vocabulary learning as the students have the option of using a monolingual or bilingual dictionary. More than half of the sample uses a bilingual dictionary either ‘often’ or ‘always’ raising a concern for the availability of proper bilingual dictionaries. Further to this, some students have mentioned that they “use google translate but sometimes it shows the wrong meaning” and “it is difficult to find the meaning in English-English dictionaries” as difficulties they encounter when studying

academic vocabulary. It is noticed that the students use the above mentioned Determination strategies either ‘sometimes’, ‘often’ or ‘always’ suggesting that the students are more lenient towards studying the form of new vocabulary and using reference material such as dictionaries. Despite this tendency, preparation of vocabulary lists – a DET strategy- is seen as a rarely used strategy as more than half of the sample use vocabulary lists rarely or do not use them at all. Similarly, the students do not seek the help of their teacher either in requesting a translation for the English word or a synonym which are considered as Social strategies. However, the students prefer asking the meaning from a friend majority mentioning ‘sometimes’ (37.32%) and approximately the same number of students using this strategy ‘often’ (32.25%). Despite the preference for asking the meaning from a friend, they do not study or practice vocabulary with a group of friends 31.16% and 30.43% accounting for ‘never’ and ‘rarely’ respectively. Thus it is evident that the selected sample of the study use social strategies less frequently except in

one occasion where they seek help from their friends when they want to know the meaning of a new word. The only cognitive strategy listed in the questionnaire – I prepare a vocabulary list and study it – is used either ‘rarely’ (28.26%) or not at all (27.54%).

Analysis of the frequency of VLS used to establish the meaning of a known word

Strategies that are used to establish the meaning of a already known word (Schmitt N. , 2000) are helpful for remembering the meaning of a word. Table 2 shows the statements included in the questionnaire that are related to this category. There are eight Memory strategy (MEM) statements, four Cognitive (COG), four Metacognitive (MET) and two Social strategy (SOC) statements.

Table 2.
Strategies for establishing the meaning of a known word.

Vocabulary learning strategy	Percentage of response yof using the strategy				
	Never	Rarely	Sometimes	Often	Always
I study words by connecting the word to a previous personal experience. (MEM) ⁴	6.52	14.4	39.86	30.43	8.70%
I study and practice vocabulary with a group of friends. (SOC)	25.72	35.14	26.45	10.87	1.82
I study new words by interacting with native speakers of English. (SOC)	19.57	30.80	30.07%	15.21	4.35%
I connect the word to its synonyms and antonyms. (MEM)	5.80	28.26	45.29	16.67	3.98
I create word groups and study them. (MEM)	25.36	33.33	28.99	10.15	2.17
I study the spelling of a word. (MEM)	7.61	18.12	29.7	31.88	12.6
I say new word aloud when studying. (MEM)	13.77	18.84	28.26	24.64	14.49
I use physical action when learning a word. (MEM)	42.7	23.19	20.6	10.51	2.90
I imagine the word’s meaning and the form. (MEM)	4.71	11.96	35.51	31.5	16.3
I use semantic maps or the graphical maps. (MEM)	30.43	32.25	25.00	10.14	2.17
I learn the word through verbal repetition. (COG)	2.90	18.12	38.41	30.43	10.14
I learn the word through written repetition. (COG)	9.06	18.84	36.96	26.09	9.06
I keep a vocabulary notebook. (COG)	32.97	26.09	19.20	14.86	6.88
I study word lists. (COG)	19.57	23.91	33.33	17.03	6.16
I use English language media to study and consolidate vocabulary (Ex. songs, movies, TV series etc.) (MET) ⁵	2.17	6.88	19.57	34.06	37.32

4 MEM refers to memory strategies

5 MET refers to metacognitive strategies

Table 2. (Continued)

I do vocabulary tests available on websites or books. (MET)	15.58	25.00	26.4	23.5	9.4
I skip certain new words when I study. (MET)	35.87	33.70	27.1	2.17	1.09
I continue to study the words over time. (MET)	3.62	11.59	36.59	35.15	13.05

It is noticed that the leniency towards using Memory strategies (MEM) are divided. More than half of the sample have stated that they study words by connecting them to a previous personal experience supporting the view that adult learners “ have a whole range of life experiences to draw on” (Harmer, 2015). Studying the spelling of a word – a MEM strategy - is used ‘often’ and ‘always’ denoting 31.88% and 12.68% respectively. Similarly, the students are more lenient towards saying the word aloud and imagining the meaning and the form of the word. Even though the students prefer the earlier mentioned memory strategies, they tend not to connect a particular word to its synonyms or antonyms which is also considered as a memory strategy. Further, the students do not use the strategy of creating word groups accounting for 25.36% and 33.33% denoting ‘never’ and ‘rarely’ respectively. Moreover, the use of physical action and semantic or graphical maps seemed to be used less as majority of the sample stated either ‘never’ or ‘rarely’. Cognitive strategies (COG) influence the learning process through repetition and keeping vocabulary note books. Strategies of learning words through verbal and written repetition are employed either ‘sometimes’ or ‘often’ by the majority. Use of a vocabulary notebook is seen as a less frequent strategy with majority replying ‘never’ or ‘rarely’ while studying word lists have received a similar preference as majority ranges between ‘rarely’ and ‘sometimes’.

Noticably, more than half of the sample use English language media such as movies, TV series and songs as a mean to study vocabulary accounting for ‘often’ (34.06%) and ‘always’ (37.32%). It suggests that the students are aware of their vocabulary learning process and make conscious decisions with regard to vocabulary learning as this is considered as a metacognitive strategy. Similarly they study words over the time often denoting 35.14%. In contrast, the students do the vocabulary tests available on books/online rarely or not at all. Moreover, they have mentioned that they do not skip certain new words when studying denoting ‘never’ (35.87%) or ‘rarely’ (33.70%). Finally, it should be noted that the selected student sample does not interact with native speakers - a SOC strategy - as a means to improve their vocabulary suggesting that they may lack such opportunities. In addition, the students do not favour practising vocabulary with a group of friends which is another social strategy.

Analysis of the frequency of VLS that use technology

The questionnaire included a section to investigate the use of technology in learning vocabulary (See Table 3). Despite the students being surrounded by new technology as they are pursuing IT degrees, their tendency to use technology in learning vocabulary is significantly low. More than half of the

sample claimed that they do not use online vocabulary games as a strategy to learn vocabulary and similarly they do not favour the use of vocabulary learning apps and watching videos that teach vocabulary which are available online. This may be a result of

not knowing the availability of such sources. In contrast, more than half of the sample often uses dictionary apps available online emphasizing their answers given in the first section of the questionnaire.

Table 3.
Strategies that use technology.

Vocabulary learning strategy	Percentage of response of using the strategy				
	Never	Rarely	Sometimes	Often	Alway
I play online vocabulary games	28.99	31.88	27.90	8.70	2.53
I use vocabulary learning apps (mobile apps)	25.00	17.03	25.36	24.28	8.33
I use dictionary apps	7.25	12.68	23.55	31.88	24.64
I watch videos that teach vocabulary which are available on websites	19.20	23.19	26.09	22.46	9.06

Considering the available global and Sri Lankan literature, it is evident that there are some similarities as well as differences in the vocabulary learning strategies used by the current student cohort. Analyzing the part of speech and affixes of a new word and guessing the meaning from textual context are frequent strategies employed by the sample of this study which is similar to the findings of Besthia (2018) study regardless of the fact that the two student cohorts are different in terms of their field of study. The sample of the current study uses bilingual dictionaries frequently which is on par with the Sri Lankan Engineering students (Manchanayaka, 2019), Thai liberal arts students (Komol & Sripetpun, 2011) and Jordanian students (Rabadi, 2016). However, it contradicts with the Indonesian students (Besthia, 2018) who use mono lingual dictionaries as a frequent strategy which may be due to their English majoring degree. Asking the meaning of a new word from a

friend is another frequently used strategy by the sample of this study which is similar to the Thai students (Komol & Sripetpun, 2011) but different from the Jordanian students (Rabadi, 2016). Further, the Jordanian students use the strategy of discussing the meaning and studying words with a group of friends less frequently which is similar to the sample of the current study. In contrast, Jordanian students ask for help from their teachers for synonyms or L1 translation frequently which is totally different from the sample of this study. Sri Lankan IT undergraduates in the selected context use both verbal and written repetition as a frequent vocabulary learning strategy whereas Indonesian (Besthia, 2018) and Jordanian students (Rabadi, 2016) use verbal repetition frequently. Here, it has been noticed that the IT undergraduates of the current sample use verbal and written repetition similar to the Sri Lankan Engineering (Manchanayaka, 2019) students. Use of

vocabulary lists and vocabulary notebooks are least frequent strategies among the sample of the study and among Thai students (Komol & Sripetpun, 2011). However, it has been noticed that Indonesian students (Besthia, 2018) most frequently keep vocabulary notebooks. Another similarity between the

current sample and the Thai students is that both cohorts use English media as a vocabulary learning strategy. Finally, it is noted that both IT undergraduates in the current context and the Indonesian students (Besthia, 2018) do not skip new words when studying vocabulary.

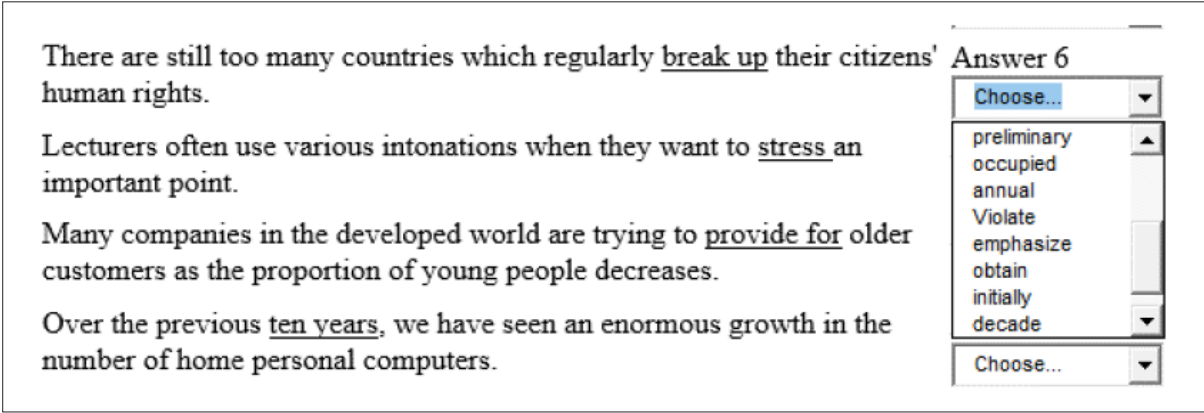
Analysis of the formative assessment marks: mid-term examination

It is crucial to study the performance of the students at the exam in order to understand whether the students' vocabulary learning strategies have compensated at formative assessments. For this study, mid-term examination which was given as a part of formative assessments was selected as a data source. The mid-term examination contained 2 vocabulary related questions. The first question carried fifteen questions and the

students were supposed to select an academic alternative for the words/phrases underlined in these sentences (See figure 3). The objective of this question is to measure their understanding of the features of academic vocabulary specifically formality. In other words, the students should be able to replace phrasal verbs and informal words with a more formal/ academic alternative.

Figure 3.

Vocabulary question 1.



The screenshot displays a vocabulary question interface. On the left, there are four sentences with underlined phrases: "break up", "stress an", "provide for", and "ten years". On the right, there is a dropdown menu labeled "Answer 6" with a "Choose..." button. The dropdown menu is open, showing a list of six academic alternatives: "preliminary", "occupied", "annual", "Violate", "emphasize", and "obtain". Below the list, there is another "Choose..." button.

Figure 4 shows the second vocabulary question in which the students were required to match two sentence halves. Here, the first half of the sentence ends with an academic word from the Academic Word List.

Figure 4.
Vocabulary question 2.

The descriptive statistics of marks obtained for both vocabulary questions are shown in table 4.

Table 4.
Descriptive statistics of vocabulary question 1 and 2.

Statistics	Vocabulary question 1	Vocabulary question 2
Mean	12.60	12.95
Median	10	14
Mode	6	24
Standard Deviation	8.49	7.29
Skewness	0.59	0.02
Minimum	0	0
Maximum	30	24

According to the descriptive statistics obtained for the first vocabulary question, the average mark received for this question is 12.60 while the medium value of 10 suggests that 50% of the students have scored less than 10 marks which is significantly low. Further, the mode value of 6 claims that the most students have scored 6 marks which is noticeably low. This data set is positively skewed (0.59) emphasizing that majority of the students have obtained low scores. According to Read's (2000) three dimensions of vocabulary assessment, the above question can be considered as a discrete, selective and context-independent question

which makes the question more challenging for the students. For instance, in the given example, the students are required to know the meanings of the words such as preliminary, occupied, annual, violate, emphasize and so on in order to select the correct answer 'violate' for the phrasal verb "break up". The average mark for the second vocabulary question is 12.95 while the medium value of 14 suggests that 50% of the students have scored higher than the average mark which is an indication for better performance. Further, the mode value of 24 claims that most frequent score is 24 marks which is the total marks given for this question. Skewness which is closer to 0 suggests that the data distribution is symmetric. Read's (2000) three dimensions of vocabulary assessment provides a rationale for students obtaining high marks for this question. This particular question is lenient towards the comprehensive spectrum in the continuum of selective to comprehensive thus making it easy to guess the meaning of the vocabulary item which is being tested.

Moreover, it is context-dependent so that the students can understand the meaning of a particular word based on the context. In this question the students can read the two sentence halves and select the correct answer based on the context. For instance, 'The new grading machine has the **function** ...' can be completed with 'of separating the larger pieces of metal from the smaller pieces' based on the students' contextual understanding of what a machine does but not necessarily knowing the meaning of the word 'function'.

Conclusions and Recommendation

Conclusions

In conclusion, this study analyzed the vocabulary learning strategies employed by the Sri Lankan IT undergraduates when studying academic vocabulary and examined their performance at a formative exam regarding the vocabulary related questions. Several strategies emerged as the most frequently used namely, using dictionaries, analyzing parts of speech and affixes of a given word, seeking help from friends, connecting the meaning with previous personal experiences and watching English language entertainment media. In contrast, studying vocabulary lists, keeping vocabulary notebook, using physical actions and semantic maps, and asking for help from teachers are the least frequent strategies among the selected sample. Moreover, the results of this study showed some similarities as well as differences to the findings of some global and Sri Lankan literature. The selected sample has noticeable similarities with the Indonesian (Besthia, 2018) and Thai students (Komol & Sripetpun, 2011) despite of their differences in the field of study. Another surprising finding is that the selected student cohort do not employ

most of technological tools and applications when studying vocabulary even though they are pursuing their degrees in IT. It may be due to the absence of limited exposure and introduction to such tools and applications. Comparison of the students' marks obtained at a formative examination led to some significant results reinforced by Read's (2000) dimensions of assessing vocabulary. The students have noticeably scored low marks for the vocabulary question which required them to replace a word with an alternative academic word which was due to the discrete, selective and context-independent nature of the question. Thus, it is questionable whether and to what extent the vocabulary learning strategies used by the selected student cohort compensate them at the exam.

Recommendations

The students are required to use a reliable bi-lingual/mono lingual dictionaries as they tend to use them frequently. Furthermore, students should explore different vocabulary learning strategies and find the most effective strategies for themselves to study academic vocabulary. Moreover, students should use a reliable sources of vocabulary input when studying the meaning of academic vocabulary. Finally, it is recommended that students should reflect on their usage of current strategies and adopt new strategies if the current strategies do not help them improve their academic vocabulary.

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